CLAIMS

1. Safety system (10; 20) of a lift installation, with
   a) a control unit (11; 21),
   b) at least one bus node (13; 23; 33),
   c) at least one safety element (16; 26; 36) and
   d) a bus (12; 22, 22.1, 22.2; 32.1, 32.2) which enables communication between the control unit (11; 21) and the bus node (13; 23; 33),

characterised in that the bus node (13; 23; 33) comprises first switching means (14; 24; 34) which on digital presetting of a target magnitude by the control unit (11; 21) acts on the safety element (16; 26; 36) with a first analog signal and second switching means (15; 25; 35) which derive an analog signal from the safety element (16; 26; 36) and make digital feedback information available to the control unit (11; 21) by way of the bus (12; 22, 22.1, 22.2; 32.1, 32.2).

2. Safety system (10; 20) according to claim 1, characterised in that the safety element (16; 26; 36) is one or more of the following safety-relevant elements:
   a) door contact
   b) lock contact
   c) buffer contact
   d) flap contact
   e) sensor
   f) actuator
   g) travel switch
   h) emergency stop switch.

3. Safety system (10; 20) according to claim 1, characterised in that the first switching means (14; 24; 34) comprises a write element (24.2; 34.2), which provides the first analog signal, and that the second switching means (15; 25; 35) comprises a read element (25.2; 35.2), which processes a second analog signal.

4. Safety system (10; 20) according to claim 3, characterised in that the bus node (13; 23; 33) comprises a processor (24.1; 34.1), which converts the presetting of the control unit (11; 21) into the first analog signal or triggers a conversion into the first analog signal.

5. Safety system (10; 20) according to claim 3 or 4, characterised in that the bus node (13; 23; 33) comprises a processor (25.1; 35.1), which converts the second analog signal into the digital feedback information or triggers a conversion of the second analog signal.

6. Safety system (10; 20) according to one of the preceding claims, characterised in that the switching means at least in part is an analog switching means (24.3, 25.3; 34.2, 35.3, 35.4) and that the bus node (13; 23; 33) comprises an analog-to-digital converter,

a) which converts the digital presetting of the control unit (11; 21) into an analog magnitude which corresponds with the first analog signal or is correlated with the first analog signal, and

b) which converts the analog signal into digital information.

7. Safety system (10; 20) according to one of the preceding claims, characterised in that the bus node (13; 23; 33) carries out a qualitative comparison of the first analog signal with the second analog signal and/or a qualitative evaluation of the first analog signal and makes the result of the comparison available as digital diagnostic information.

8. Safety system (10; 20) according to one of claims 1 to 6, characterised in that the control unit (11; 21) carries out a quantitative comparison of the first analog signal with the second analog signal, wherein this comparison takes place on the basis of the digital presetting and the digital feedback information.

9. Method for continuous checking of a safety system (10; 20) of a lift installation, wherein the safety system (10; 20) comprises a control unit (11; 21), at least one bus node (13; 23; 33), at least one safety element (16; 26; 36) and a bus (12; 22, 22.1, 22.2; 32.1, 32.2), which enables a communication between the control unit (11; 21) and the bus node (13; 23; 33), characterised in that the following steps are carried out:

a) transmission of digital information by the control unit (11; 21) to the bus node (13; 23; 33) by way of the bus (12; 22, 22.1, 22.2; 32.1, 32.2) in order to thereby preset a target magnitude,

b) conversion of the digital information by the bus node (13; 23; 33) in order to prepare a first analog signal which corresponds with the target magnitude or is correlated therewith,

c) application of the first analog signal to, or impression of the first analog signal on, the safety element (16; 26; 36),

d) derivation or reception of an analog signal at a safety element (16; 26; 36) by the bus node (13; 23; 33),

e) processing of the analog signal by the bus node (13; 23; 33) and

f) preparing digital feedback information by the bus node (13; 23; 33) for the control unit (11; 21).

10. Method according to claim 9, characterised in that processing of the digital information and the feedback information is carried out by the control unit (11; 21), wherein preferably a statement about the safety element (16; 26; 36) is made possible.

11. Method according to claim 9, characterised in that on processing of the analog signal a qualitative evaluation of the first analog signal is undertaken, wherein the evaluation is carried out entirely or partly by the bus node (13; 23; 33).

12. Method according to one of claims 9 to 11, characterised in that the bus node (13; 23; 33) carries out a digital-to-analog conversion in order to convert the digital information into the first signal.

13. Method according to one of claims 9 to 11, characterised in that the bus node (13; 23; 33) on processing of the analog signal carries out an analog-to-digital conversion in order to convert the analog signal into the digital feedback information.

14. Method according to one of claims 9 to 13, characterised in that the bus node (13; 23; 33) is constructed in redundant manner and steps a) to c) are performed by switching means of the bus node (13; 23; 33) different from the steps d) and e).